

PATENT ABSTRACTS OF JAPAN

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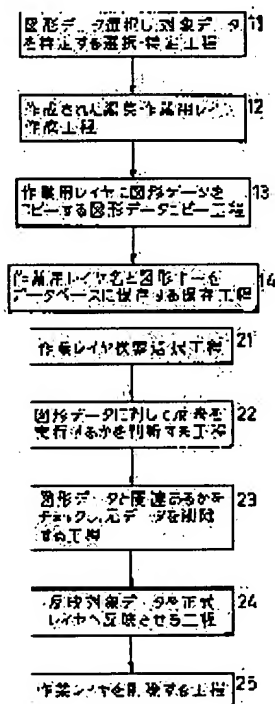
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(54) METHOD FOR EDITING GRAPHIC DATA

(57)Abstract:

PROBLEM TO BE SOLVED: To secure efficiency and correctness in editing work environment.

SOLUTION: Graphic data edited by a graphics editing means is edited by a reflecting means for reflection to a formal layer. Graphic editing means is composed of a selection specifying process 11 for selecting graphic data of a map equipment where editing is required and specifying object data, a work layer generating process 12 for editing object data, graphic data copying process 13 for copying graphic data applying to a work layer and preserving process 14 for preserving the work layer name of graphic data copied in the work layer and a graphic key. The reflecting means is composed of retrieval selecting process 21 for selecting the work layer, a judging process 22 for judging whether or not reflection is executed as against whole graphic data in the work layer when the work layer to be an object is selected, process 23 for checking to which graphic data of which normal layer reflection object graphic data is related, process for reflecting reflection object graphic data to the formula layer and process 25 for removing the work layer.



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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the graphic-data edit approach of editing the facility graphic form which exists the map in a geographic information system, and on that map.

[0002]

[Description of the Prior Art] Graphic data can roughly be divided and can be classified into the following two according to the system of a geographic information system.

[0003] A: Map data B used as a background : the graphic data which are needed on management on the map (let this for convenience be administration object facility data)

After both of the data of Above A and B take into consideration the newest data at the event at the time of system operation, it registers with a system. However, also in which, the first condition will hardly change permanently in many cases among a map and a facility. In a geographic information system, in order to cope with geometrical or location-modification of these maps and a facility, it is common to have the edit function of these data in a certain form.

[0004] Usually, the above-mentioned map and facility data are defined as the layer with separate map data layer and facility data layer, as shown in drawing 10 . Moreover, according to the activity application, the layer division also of a map and the facility data layer is carried out further at data A-D. A graphic-data edit function is correcting and going to the form which edited the location and the configuration of the every place drawing and facility data which exist in each layer of these on the layer, and was based on the actual actual condition.

[0005]

[Problem(s) to be Solved by the Invention] In the edit function to the map and facility data mentioned above, in order to edit the data which exist in each layer directly, a problem as shown in the following parentheses occurs.

[0006] In the operation which uses the geographic information system [which the data before edit all cannot compare with the data after edit], it is very important to compare the difference among many information which may be each graphic-data modification front and after modification. However, if it changes into the graphic data of Z field after changing at present the graphic data of Y field before modification shown in drawing 11 , since the graphic data before modification will not remain, comparison verification will become difficult. Although there is also a method of performing an editing task after copying the original graphic data before edit in order to solve this, now, the two same graphic data (one information with a facility or a map) will exist, and there is a possibility that conflict of the data within a system may occur.

[0007] [After performing some edits, since data are directly changed even if it is going to cancel old edit, it becomes difficulty]. For example, when judgment that the first condition was more suitable too is made except for some parts after changing some graphic data and performing verification on various operation, it cannot do to return to the condition before changing graphic data. Moreover, although it is possible to return to the condition that there was no modification by forcing a system to terminate if it is

in the condition of not saving the changed graphic data yet, by this approach, a modification part to leave also brings a result lost simultaneously, and has the problem which cannot be referred to as very efficient.

[0008] If the map and facility data [with which backup data increase in number] are edited, in order to hold the data before correction, the still more nearly same activity data as another former data may be created. However, in spite of correction of the field of mere a few, data are held to a duplex and, now, there is a problem which is not efficient.

[0009] If the trouble hung up above is considered on the basis of the system itself, although it will not be so big a thing, originally, a system supports the operation used as the object, and it comes to occupy big weight, judging from an operation top.

[0010] While this invention was made in view of the above-mentioned situation, saves correction data in correction, a new addition, etc. of graphic data and enables it to compare them with the condition before modification easily. Let it be a technical problem to offer the graphic-data edit approach of having enabled it to collateralize the efficiency and accuracy of a graphic-data editing-task environment, as it can grasp easily how much modification there were from the graphic form condition before a check and modification of an edit part.

[0011]

[Means for Solving the Problem] In order that this invention may attain the above-mentioned technical problem, it is obtained by graphic form edit means to by which created the layer for editing tasks for editing that data after the 1st invention specifies graphic data to edit into, and copied the graphic data for edit to that layer, and they were saved with the data before edit at it, and this graphic form edit means, and it consists of a reflection means make the graphic data saved reflect in a formal layer.

[0012] Selection / specification process of the 2nd invention choosing the graphic data into which said graphic form edit means wants to edit, and specifying object data, If the layer for editing tasks is created at the layer creation process for editing tasks which creates the layer for editing tasks for editing the object data specified at this selection / specification process, and this creation process If the copy in the graphic-data copy process which copies the graphic data applicable to this layer for editing tasks, and this copy process finishes It consists of a preservation process which saves the key for specifying the layer name and graphic data with which former data belonged, and the operating layer name of the graphic data copied to the operating layer and a graphic form key.

[0013] The retrieval selection process which chooses the activity layer to which said reflection means searches an activity layer, and the 3rd invention is applicable from the searched activity layer, The decision process which judges whether reflection is performed to the graphic data on the activity layer chosen at this retrieval selection process, The check deletion process of confirming which graphic data and relation the graphic data set as the object of the reflection judged at this decision process have, and deleting the former data on a formal layer, [on which formal layer] It consists of a process in which the data for reflection which are checked at this process and have relation are made to reflect to a formal layer, and a process which deletes an activity layer after making object data reflect in a formal layer at this process.

[0014]

[Embodiment of the Invention] The gestalt of implementation of this invention is explained based on a drawing below. Drawing 1 is process drawing of the graphic-data edit approach which shows the gestalt of implementation of this invention, and the graphic data which 1 is a graphic form edit means to mainly edit a graphic form, and were edited with this graphic form edit means 1 are edited by the reflection means 2 for being reflected in a formal layer in drawing 1. The graphic form edit means 1 is constituted as shown in following drawing 2. In drawing 2, 11 is selection / specification process of choosing the graphic data of a map and a facility to edit into, and specifying object data. Next, the layer for editing tasks for editing the object data specified at this selection / specification process 11 is created at the operating layer creation process 12. If the layer for editing tasks is created at this process 12, the graphic data applicable to this layer for editing tasks will be copied at the graphic-data copy process 13. If the copy in this copy process 13 finishes, the key for specifying the layer name and graphic data with which

former data belonged, and the operating layer name and graphic form key of graphic data which were copied to the operating layer are saved at the preservation processes 14, such as a database.

[0015] Approximate account drawing in which drawing 3 shows correction down stream processing of graphic data, and drawing 4 are the flow charts for describing actuation of drawing 2 and drawing 3. In drawing 3, the graphic form for edit is chosen from the graphic data 31 of a map and a facility, and the graphic form editing task 32 of the copy to the activity layer of graphic data is performed. At this time, the formal layer name, the copy original-drawing form key, the activity layer name in the graphic form editing task 32, and copy graphic form key of a map layer are registered into the related definition database 33. On the other hand, the activity layer in the graphic form editing task 32 is saved in the activity layer saved area 34. In addition, 31a is a map data layer and 31b is a facility data layer.

[0016] Next, the operation flow chart of drawing 4 describes actuation of drawing 2 R> 2 and drawing 3. First, the graphic data for edit are chosen at selection / specification process 11 of drawing 2, and object data are specified (S1). Then, a graphic form edit system is automatically created at the operating layer operating layer creation process 12 for editing object data. at this time, it judges whether the operating layer has already existed (S2), and exists (YES) -- it is -- it judges whether they are whether it overwrites and new creation (S3). In overwrite, the graphic form for edit is copied at the copy process 13 to an operating layer (S4). In this copy, after performing the graphic form key of a copied material, acquisition (S5) of a formal layer name, and acquisition (S6) of a copy graphic form key and a layer name, the relation of two layer names and graphic form keys is registered into a database at the preservation process 14 (S7). Then, only an activity layer is made applicable to edit and an editing task is performed (S8). In addition, at step S2, by (NO) and step S3, in being new, after creating an activity layer (S9), it moves to processing of step S4.

[0017] In ****, when there are two or more graphic forms for edit, the above-mentioned actuation is repeated. Thus, the created edit graphic data are eternally saved in a system, unless the reflection means 2 expressed below is performed, and it becomes possible to compare with the condition of the data before edit. In addition, the attribute information in relation to original-drawing form data etc. can refer to the information registered into the database mentioned above also from the edit graphic data on an activity to origin, and it can process it, without changing in any way with the treatment of the usual graphic data.

[0018] Drawing 5 is approximate account drawing in the case of referring to the attribute information in relation to an original-drawing form etc. from the edit graphic form on an activity layer, and acquires the graphic form key and layer name on the formal layer which compares with an activity layer name etc. the graphic data which chose the graphic form on the activity layer 51, and were saved in the related definition database 52, and is related in this drawing 5. Then, the layer name of a map and the facility data 53 etc. is acquired from the attribute information database 54. In addition, drawing 5 is processed in the procedure shown in drawing 6. In drawing 6, the graphic form which refers to attribute information is chosen (S1). It judges whether the selected graphic form is formal or it is the thing of an activity layer (S2), and if formal, the graphic form key on a formal layer will be acquired (S3). On the other hand, if it is an activity, the graphic form key on an activity layer will be acquired (S4). Then, the graphic form key on the formal layer corresponding to the graphic form key acquired from related definition data *-SU is acquired (S5). If the graphic form key on a formal layer is acquired, information applicable to a graphic form key will be acquired from an attribute information database (S6), and related attribute information will be displayed.

[0019] Next, the edit data formal layer reflection means 2 shown in drawing 1 is described using drawing 7 and drawing 8. In drawing 7, starting of the reflection means 2 operates the retrieval selection process 21 which chooses the activity layer which searches an activity layer and serves as a searched object. If two or more retrieval of the activity layer is carried out at this retrieval selection process 21, it will be determined which [of them] is made into a processing object. Here, decision of the target activity layer judges whether reflection is performed to all the graphic data on an activity layer at the decision process 22. The range which graphic data reflect is specified for this decision, and while confirming at a process 23 which graphic data and relation the graphic data set as the object of reflection

have, the former data on a formal layer are deleted. [on which formal layer] Then, after making the data for reflection reflect in a formal layer at the process 24 made to reflect to a formal layer, an activity layer is deleted at the deletion process 25.

[0020] Here, a procedure with the approximate account of a reflection means is described using drawing 8 R> 8 and drawing 9. In drawing 8, 81 is an activity layer saved area, and it judges whether an activity layer exists in this saved area 81 (S1 of drawing 9), and, in (YES), judges whether two or more activity layers exist (S2 of drawing 9). As a result of this decision, if it is (YES), an activity layer to reflect in a formal layer is chosen (S3 of drawing 9). If an activity layer is chosen, it will judge whether he wants to reflect all the graphic data on an object activity layer (S4 of drawing 9), and the object 82 for reflection a line (S5 of drawing 9) indicates selection of the graphic data reflected if it is (NO) to be to drawing 8 will be chosen. If the object 82 for reflection is chosen, the list of graphic data reflected in a degree will be created (S6 of drawing 9). In addition, if it is (YES) in said decision (S4), a list is created by processing of step S6.

[0021] The graphic-data information on the formal layer connected with the graphic data on the activity layer of relevance is acquired from the related definition database 83 shown in drawing 8 after list creation (R> 9 drawing 9 S7). After deleting the graphic form on the formal layer 84 shown in drawing 8 after the acquisition (S8 of drawing 9) and making the data for reflection reflect to a formal layer (S9 of drawing 9), it performs reassigning for the key of the original graphic data to graphic data (S10 of drawing 9). Then, an activity layer is deleted (S11 of drawing 9).

[0022] By constituting as mentioned above, the shape of a new model of the facility by modification of geography and the simulation of a location are enabled to carry out by the system in an instant, and data construction with the dependability adapted to the actual condition of changing to real time can be performed. Moreover, it does not have correction data with the whole map like the data before correction (dimension data), and only the part which became an object for correction is treated as data, therefore it becomes possible to minimize edit data. Furthermore, returning to the data once corrected as it is a former system reached to an extreme of impossible or difficulty. However, while being able to respond by constituting as mentioned above only by deleting the activity layer itself if correction data become unnecessary in this invention, some correction data are reflected in a formal layer as they are, and since other correction data can also be carried out out of the object of reflection, a more active data-editing environment can be acquired.

[0023]

[Effect of the Invention] As stated above, while being able to perform comparison examination with the data after edit based on preservation of the data before edit according to this invention, there is an advantage, like small region-ization of correction data is attained and sending back of correction data becomes possible.

[Translation done.]

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CLAIMS

[Claim(s)]

[Claim 1] The graphic-data edit approach equipped with the graphic form edit means which created the layer for editing tasks for editing that data, copied the graphic data for edit to that layer, and was saved with the data before edit, and a reflection means to make the graphic data which are obtained by this graphic form edit means, and are saved reflect in a formal layer after specifying graphic data to edit into.

[Claim 2] Selection / specification process of said graphic form edit means choosing graphic data editing into, and specifying object data, If the layer for editing tasks is created at the layer creation process for editing tasks which creates the layer for editing tasks for editing the object data specified at this selection / specification process, and this creation process If the copy in the graphic-data copy process which copies the graphic data applicable to this layer for editing tasks, and this copy process finishes The graphic-data edit approach according to claim 1 characterized by consisting of a preservation process which saves the key for specifying the layer name and graphic data with which former data belonged, and the operating layer name of the graphic data copied to the operating layer and a graphic form key.

[Claim 3] The retrieval selection process which chooses the activity layer to which said reflection means searches an activity layer, and is applicable from the searched activity layer, The decision process which judges whether reflection is performed to the graphic data on the activity layer chosen at this retrieval selection process, The check deletion process of confirming which graphic data and relation the graphic data set as the object of the reflection judged at this decision process have, and deleting the former data on a formal layer, [on which formal layer] The graphic-data edit approach according to claim 1 characterized by consisting of a process in which the data for reflection which are checked at this process and have relation are made to reflect to a formal layer, and a process which deletes an activity layer after making object data reflect in a formal layer at this process.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The configuration explanatory view showing the gestalt of implementation of this invention.

[Drawing 2] The process explanatory view showing the detail of a graphic form edit means.

[Drawing 3] Approximate account drawing showing correction down stream processing of graphic data.

[Drawing 4] The flow chart for describing the operations sequence of drawing 3 .

[Drawing 5] Approximate account drawing in the case of referring to from the edit graphic form on an activity layer.

[Drawing 6] The flow chart for describing the operations sequence of drawing 5 .

[Drawing 7] The process explanatory view showing the detail of a reflection means.

[Drawing 8] Approximate account drawing of a reflection means.

[Drawing 9] The flow chart which describes the operations sequence of drawing 8 .

[Drawing 10] The explanatory view of the layer hierarchy of a map and facility data.

[Drawing 11] The condition explanatory view of the data of graphic-data edit before and the back.

[Description of Notations]

1 -- Graphic form edit means

2 -- Reflection means

11 -- Selection specification process

12 -- Operating layer creation process

13 -- Graphic-data copy process

14 -- Preservation process

21 -- Operating layer funiculus selection process

22 -- Reflection decision process

23 -- Check process

24 -- Formal layer reflection process

25 -- Activity layer deletion process

[Translation done.]